

TABLE A  
Surface Water Dissolved Metals Analytical Summary  
Concentrations in micrograms per liter (µg/L) parts per billion (ppb)

Field Sample ID: Location:	Superfund Chemical Data Matrix (SCDM) RDSC (µg/L)	Superfund Chemical Data Matrix (SCDM) CRSC (µg/L)	MCL/MCLG (µ/L)	UASW030 Lower Ross Basin Drainage upstream of Grand Mogul Mine (Background)	UASW059 Cement Creek at the toe of Grand Mogul Mine	UASW023 Cement Creek upstream of Mogul North Mine	UASW021 Cement Creek downstream of Mogul North Mine	UASW020 Cement Creek upstream of Mogul Mine	UASW018 Cement Creek upstream of wetland that contains Mogul Mine drainage	UASW017 Cement Creek downstream of wetland that channels Mogul Mine drainage	UASW016 Cement Creek upstream of Red and Bonita Mine	UASW014 Cement Creek downstream of Red and Bonita Mine
Analytes												
Dilution Factor	-	-	-									
Aluminum	-	-	-	69.0	13200 ☆	1580 ☆	1520 ☆	996 ☆	2830 ☆	2570 ☆	2480 ☆	4980 ☆
Antimony	15	-	6	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U
Arsenic	11	0.057	10	2.50 U	26.9 D ☆	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U
Barium	2,600	-	2,000	30.8 JD	25.0 U	29.1 JD	26.3 JD	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U
Beryllium	73	-	4	0.500 U	0.940 JD	0.500 U	0.649 JD	0.500 U	0.760 JD	1.08 D	0.500 U	3.03 D ☆
Cadmium	18	-	5	3.09 D	105 D ☆	13.6 D ☆	12.0 D ☆	8.88 D	19.2 D ☆	15.8 D ☆	13.7 D ☆	25.8 D ☆
Calcium	-	-	-	46200	17400	55400	55900	45100	71600	81400	87800	231000 ☆
Chromium	110	-	100	2.50 U	5.46 D	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U
Cobalt	-	-	-	0.500 U	25.6 D ☆	0.500 U	0.500 U	0.500 U	3.02 D ☆	2.34 D	1.83 D	46.0 D ☆
Copper	-	-	1,300	25.2 D	4690 D ☆	102 D ☆	105 D ☆	91.1 D ☆	240 D ☆	201 D ☆	140 D ☆	121 D ☆
Iron	-	-	-	100 U	46400 ☆	100 U	100 U	100 U	413	186 J	210 J	30600 ☆
Lead	-	-	15	0.620 JD	33.8 D ☆	2.03 D ☆	2.62 D ☆	4.01 D ☆	11.9 D ☆	12.6 D ☆	7.42 D ☆	16.1 D ☆
Magnesium	-	-	-	4060	12000	7020	7150	5520	6880	6280	6010	15700 ☆
Manganese	5,100	-	-	120	8740 ☆	633 ☆	550 ☆	-	4040 ☆	3370 ☆	3000 ☆	14900 ☆
Molybdenum	-	-	-	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Nickel	730	-	-	2.50 U	16.4 D ☆	6.06 D	6.43 D	4.42 JD	5.71 D	4.23 JD	3.23 JD	20.2 D ☆
Potassium	-	-	-	294 J	362 J	482 J	517 J	462 J	593 J	568 J	532 J	920 J
Selenium	180	-	50	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U
Silver	180	-	-	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Sodium	-	-	-	1230	626	1280	1260	1150	2190	2610	2890	5430 ☆
Thallium	-	-	0.5	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U
Vanadium	260	-	-	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Zinc	11,000	-	-	556	24900 ☆	2750 ☆	2550 ☆	1920 ☆	5950 ☆	4910 ☆	4640 ☆	8770 ☆

J The associated numerical value is an estimated quantity because quality control criteria were not met. Presence of the analyte is reliable.  
U The analyte was not detected above the CRQL.  
D Diluted  
RDSC Reference Dose Screening Concentration  
CRSC Cancer Risk Screening Concentration  
µg/L micrograms per liter  
BOLD Background value  
Analytical result exceeds a benchmark  
☆ Elevated Concentration (concentration is > 3X background or 5X blank, but not greater than a SCDM benchmark)  
★ Elevated Concentration (concentration is > 3X background and greater than a SCDM benchmark)

Sources: EPA 2008 (CLP limits); EPA 2004 (SCDM); EPA 2008 (Low Concentration Detection Limits)

TABLE A - continued  
Surface Water Dissolved Metals Analytical Summary  
Concentrations in micrograms per liter (µg/L) parts per billion (ppb)

Sample ID: Location:				UASW030 Lower Ross Basin Drainage upstream of Grand Mogul Mine (Background)	UASW013 Cement Creek upstream of the confluence with the North Fork of Cement Creek	UASW009 Cement Creek downstream of the confluence with the North Fork of Cement Creek	UASW008 Cement Creek upstream of the American Tunnel	UASW006 Cement Creek downstream of the American Tunnel and upstream of the confluence with the South Fork of Cement Creek	UASW004 Cement Creek downstream of confluence with the South Fork of Cement Creek	UASW058 Cement Creek upstream of the confluence with Dry Gulch drainage	UASW056 Cement Creek downstream of the Dry Gulch drainage	UASW050 Cement Creek downstream of the Mammoth Tunnel	UASW049 Cement Creek upstream of the confluence with Fairview Gulch and the Elk Tunnel discharge	UASW047 Cement Creek downstream of the Elk Tunnel and Fairview Gulch
Analytes	Superfund Chemical Data Matrix (SCDM) RDSC (µg/L)	Superfund Chemical Data Matrix (SCDM) CRSC (µg/L)	MCL/ MCLG (µg/L)											
Dilution Factor	-	-	-											
Aluminum	-	-	-	69.0	3550 ☆	7030 ☆	7940 ☆	9160 ☆	5130 ☆	5510 ☆	5440 ☆	8830 ☆	8900 ☆	8450 ☆
Antimony	15	-	6	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U
Arsenic	11	0.057	10	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	4.63 JD	5.00 JD	3.51 JD
Barium	2,600	-	2,000	30.8 JD	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U
Beryllium	73	-	4	0.500 U	2.73 D ☆	3.57 D ☆	2.88 D ☆	3.61 D ☆	2.28 D	1.52 D	1.75 D	1.50 D	1.27 D	1.44 D
Cadmium	18	-	5	3.09 D	22.0 D ☆	29.1 D ☆	28.7 D ☆	30.3 D ☆	16.1 D ☆	13.7 D ☆	12.7 D ☆	9.70 D ☆	9.51 D ☆	8.99 D
Calcium	-	-	-	46200	210000 ☆	230000 ☆	238000 ☆	258000 ☆	202000 ☆	182000 ☆	178000 ☆	169000 ☆	171000 ☆	170000 ☆
Chromium	110	-	100	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U
Cobalt	-	-	-	0.500 U	36.3 D ☆	49.2 D ☆	46.6 D ☆	59.4 D ☆	33.0 D ☆	30.4 D ☆	30.4 D ☆	28.7 D ☆	29.8 D ☆	29.4 D ☆
Copper	-	-	1,300	25.2 D	128 D ☆	909 D ☆	884 D ☆	796 D ☆	398 D ☆	366 D ☆	355 D ☆	235 D ☆	239 D ☆	225 D ☆
Iron	-	-	-	100 U	27700 ☆	31400 ☆	30000 ☆	32500 ☆	16200 ☆	15900 ☆	16000 ☆	23900 ☆	24100 ☆	21800 ☆
Lead	-	-	15	0.620 JD	13.3 D ☆	14.6 D ☆	19.3 D ☆	44.8 D ☆	25.0 D ☆	27.9 D ☆	26.8 D ☆	25.3 D ☆	25.4 D ☆	24.7 D ☆
Magnesium	-	-	-	4060	14000 ☆	15600 ☆	16100 ☆	18200 ☆	13100 ☆	12600 ☆	12200 ☆	11700	11800	11400
Manganese	5,100	-	-	120	12800 ☆	14800 ☆	14800 ☆	18500 ☆	10100 ☆	9150 ☆	8750 ☆	6240 ☆	6180 ☆	5860 ☆
Molybdenum				0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Nickel	730	-	-	2.50 U	16.3 D	328 D	20.8 D	24.8 D	14.7 D	12.6 D	12.2 D	15.2 D	15.3 D	14.4 D
Potassium	-	-	-	294 J	874 J	899 J ☆	926 J ☆	987 J ☆	933 J ☆	1070 ☆	1100 ☆	1700 ☆	1720 ☆	1680 ☆
Selenium	180	-	50	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U
Silver	180	-	-	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Sodium	-	-	-	1230	4980 ☆	4820 ☆	5100 ☆	5630 ☆	4480 ☆	4370 ☆	4280 ☆	3810 ☆	3870 ☆	3990 ☆
Thallium	-	-	0.5	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U
Vanadium	260	-	-	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Zinc	11,000	-	-	556	7890 ☆	9350 ☆	9230 ☆	10700 ☆	5510 ☆	5130 ☆	4850 ☆	3560 ☆	3510 ☆	3320 ☆

J The associated numerical value is an estimated quantity because quality control criteria were not met. Presence of the analyte is reliable.  
U The analyte was not detected above the CRQL.  
D Diluted  
RDSC Reference Dose Screening Concentration  
CRSC Cancer Risk Screening Concentration  
µg/L micrograms per liter  
BOLD Background value  
XXX Analytical result exceeds a benchmark  
☆ Elevated Concentration (concentration is > 3X background or 5X blank, but not greater than a SCDM benchmark)  
★ Elevated Concentration (concentration is > 3X background and greater than a SCDM benchmark)

Sources: EPA 2008 (CLP limits); EPA 2004 (SCDM); EPA 2008 (Low Concentration Detection Limits)

TABLE A - continued  
Surface Water Dissolved Metals Analytical Summary  
Concentrations in micrograms per liter (µg/L) parts per billion (ppb)

Sample ID: Location:	Superfund Chemical Data Matrix (SCDM) RDSC (µg/L)	Superfund Chemical Data Matrix (SCDM) CRSC (µg/L)	MCL/MCLG (µg/L)	UASW030 Lower Ross Basin Drainage upstream of Grand Mogul Mine (Background)	UASW046 Cement Creek upstream of the confluence with Minnesota Gulch drainage	UASW044 Cement Creek upstream of the Anglo Saxon Mine and downstream of Minnesota Gulch drainage	UASW042 Cement Creek downstream of the Anglo Saxon Mine drainage	UASW041 Cement Creek upstream of the confluence with Ohio Gulch drainage	UASW039 Cement Creek upstream of the confluence with Illinois Gulch drainage and downstream of Ohio Gulch drainage
Analytes									
Dilution Factor	-	-	-						
Aluminum	-	-	-	69.0	8340 ☆	8150 ☆	7870 ☆	8090 ☆	8320 ☆
Antimony	15	-	6	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U
Arsenic	11	0.057	10	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U
Barium	2,600	-	2,000	30.8 JD	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U
Beryllium	73	-	4	0.500 U	1.52 D	1.32 D	1.36 D	1.58 D	0.925 JD
Cadmium	18	-	5	3.09 D	8.60 D	9.09 D	8.14 D	8.71 D	7.47 D
Calcium	-	-	-	46200	170000 ☆	167000 ☆	175000 ☆	171000 ☆	165000 ☆
Chromium	110	-	100	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U
Cobalt	-	-	-	0.500 U	28.2 D ☆	28.9 D ☆	25.6 D ☆	26.7 D ☆	27.3 D ☆
Copper	-	-	1,300	25.2 D	212 D ☆	212 D ☆	191 D ☆	184 D ☆	184 D ☆
Iron	-	-	-	100 U	20000 ☆	18200 ☆	17100 ☆	17200 ☆	17600 ☆
Lead	-	-	15	0.620 JD	24.8 D ☆	26.0 D ☆	24.1 D ☆	24.5 D ☆	25.7 D ☆
Magnesium	-	-	-	4060	11300	11200	11600	11300	11300
Manganese	5,100	-	-	120	5780 ☆	5750 ☆	5900 ☆	5710 ☆	5610 ☆
Molybdenum				0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Nickel	730	-	-	2.50 U	13.2 D ☆	14.9 D ☆	12.2 D ☆	12.9 D ☆	12.7 D ☆
Potassium	-	-	-	294 J	1660 ☆	1650 ☆	1650 ☆	1680 ☆	1680 ☆
Selenium	180	-	50	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U
Silver	180	-	-	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Sodium	-	-	-	1230	4030 ☆	4030 ☆	4280 ☆	4150 ☆	4090 ☆
Thallium	-	-	0.5	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.77 JD
Vanadium	260	-	-	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Zinc	11,000	-	-	556	3230 ☆	3210 ☆	3160 ☆	3090 ☆	3000 ☆

J The associated numerical value is an estimated quantity because quality control criteria were not met. Presence of the analyte is reliable.  
U The analyte was not detected above the CRQL.  
D Diluted  
RDSC Reference Dose Screening Concentration  
CRSC Cancer Risk Screening Concentration  
µg/L micrograms per Liter  
BOLD Background value  
XX Analytical result exceeds a benchmark  
☆ Elevated Concentration (concentration is > 3X background or 5X blank, but not greater than a SCDM benchmark)  
★ Elevated Concentration (concentration is > 3X background and greater than a SCDM benchmark)

Sources: EPA 2008 (CLP limits); EPA 2004 (SCDM); EPA 2008 (Low Concentration Detection Limits)

TABLE A - continued  
Surface Water Dissolved Metals Analytical Summary  
Concentrations in micrograms per liter (µg/L) parts per billion (ppb)

Sample ID: Location:	Superfund Chemical Data Matrix (SCDM) RDSC (µg/L)	Superfund Chemical Data Matrix (SCDM) CRSC (µg/L)	MCL/MCLG (µg/L)	UASW030 Lower Ross Basin Drainage upstream of Grand Mogul Mine (Background)	UASW037 Cement Creek downstream of the Illinois Gulch drainage	UASW036 Cement Creek upstream of the Kendrick-Gelder Smelter	UASW035 Cement Creek downstream of the Kendrick- Gelder Smelter	UASW02 Cement Creek immediately upstream of the confluence with the Animas River	UASW01 Animas River Downstream of confluence with Cement Creek	UASW34 Animas River upstream of confluence with Mineral Creek	UASW32 Animas River downstream of confluence with Mineral Creek	UASW29 Animas River most downstream sample location
Analytes												
Dilution Factor	-	-	-									
Aluminum	-	-	-	69.0	7580	7800	7890	7810	7330	530	275	1300
Antimony	15	-	6	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U
Arsenic	11	0.057	10	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U	2.50 U
Barium	2,600	-	2,000	30.8 JD	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U	25.0 U
Beryllium	73	-	4	0.500 U	0.986 JD	0.910 JD	1.14 D	0.826 JD	1.17 D	0.5 U	0.5 U	0.5 U
Cadmium	18	-	5	3.09 D	7.38 D	5.87 D	6.57 D	6.55 D	6.19 D	2.96 D	1.76 D	0.653 JD
Calcium	-	-	-	46200	172000	171000	177000	175000	169000	91000	76900	87500
Chromium	110	-	100	2.50 U	2.50 U	2.50 U	2.50 U	2.5 U	2.50 U	2.5 U	2.50 U	2.50 U
Cobalt	-	-	-	0.500 U	24.7 D	23.5 D	22.3 D	23.7 D	20.4 D	7.33 D	6.34 D	3.84 D
Copper	-	-	1,300	25.2 D	175 D	146 D	147 D	148 D	121 D	26.1 D	13.9 D	2.50 U
Iron	-	-	-	100 U	14800	12200	12000	11500	10,800	1980	2630	8140
Lead	-	-	15	0.620 JD	22.4 D	18.9 D	17.4 D	17.8 D	17.8 D	0.5 U	0.5 U	8.74 D
Magnesium	-	-	-	4060	10900	10600	10900	10,900	10400	5630	5720	7330
Manganese	5,100	-	-	120	5280 ★	4390	4500	4550	4750	2560	1070	700
Molybdenum				0.500 U	0.557 U	0.900 U	0.500 U	1.04 JD	0.500 U	0.67 JD	0.500U	0.500 U
Nickel	730	-	-	2.50 U	11.5 D	11.7 D	11.0 D	10.6 D	8.46 D	2.96 JD	2.50 U	2.50 U
Potassium	-	-	-	294 J	1580	1780	1840	1790	1700	1010	856 J	1620
Selenium	180	-	50	2.50 U	2.50 U	2.50 U	2.50 U	2.50	2.50 U	2.50 U	2.50 U	2.5 U
Silver	180	-	-	0.500 U	0.500 U	0.891 U	0.500 U	0.953 JD	0.5 U	0.500 U	0.500 U	0.500 U
Sodium	-	-	-	1230	4310	4460	4550	4540	4450	3150	3570	5580
Thallium	-	-	0.5	2.50 U	4.02 JD	6.35 D	2.50 U	5.61 D	2.50 U	2.50 U	2.50 U	2.50 U
Vanadium	260	-	-	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Zinc	11,000	-	-	556	2800	2260	2340	2370	2410	1030	558	94.6

J The associated numerical value is an estimated quantity because quality control criteria were not met. Presence of the analyte is reliable.  
U The analyte was not detected above the CRQL.  
D Diluted  
RDSC Reference Dose Screening Concentration  
CRSC Cancer Risk Screening Concentration  
µg/L micrograms per liter  
BOLD Background value  
XX Analytical result exceeds a benchmark  
★ Elevated Concentration (concentration is > 3X background or 5X blank, but not greater than a SCDM benchmark)  
★ Elevated Concentration (concentration is > 3X background and greater than a SCDM benchmark)

Sources: EPA 2008 (CLP limits); EPA 2004 (SCDM); EPA 2008 (Low Concentration Detection Limits)